What is claimed is:

1. A method of forming a semiconductor device having a metal silicide, comprising the steps of:

forming a source/drain junction area on a silicon substrate;

forming an attack protection layer on the source/drain junction area, wherein the attack protection layer is electrically conductive and prevents a silicon substrate attack caused by chlorine (Cl) gas;

forming a titanium (Ti) layer over the attack protection layer through a low pressure chemical vapor deposition (LPCVD) process using a source gas of $TiCl_4$; and

diffusing the Ti layer into the attack protection layer to thereby form a metal silicide layer.

2. The method as recited in claim 1, wherein a poly-silicon layer formed by using a chemical vapor deposition (CVD) process is used for forming the attack protection layer.

3. The method as recited in claim 1, further comprising the step of deoxidizing the surface of the Ti layer using hydrogen (H_2) gas to remove a remnant chlorine (Cl) radical in the Ti layer.

4. The method as recited in claim 1, further

comprising the step of illuminating an ultra violet light having a higher energy than a binding energy of a SiCl reaction product on the surface of the Ti layer to remove the remnant chlorine (Cl) radical in the Ti layer.

5. The method as recited in claim 2, wherein the attack protection layer is formed by the CVD process using a source gas of $Si_2H_6/Cl/H_2$.

6. The method as recited in claim 2, wherein a thickness of the attack protection layer ranges from about 50 Å to about 200 Å

7. The method as recited in claim 5, wherein the CVD process for forming the attack protection layer is carried out at a temperature ranging from about 600 ℃ to about 700 ℃ and at a pressure ranging from about 0.1 mtorr to about 1.0 mtorr.

8. The method as recited in claim 5, further comprising the step of deoxidizing the surface of the attack protection layer by using hydrogen (H_2) gas to remove the remnant chlorine (Cl) radical in the attack protection layer after depositing the attack protection layer.

9. The method as recited in claim 5, further

comprising the step of illuminating an ultra violet light having a higher energy than a binding energy of SiCl on the surface of the attack protection layer to remove the remnant chlorine (Cl) radical in the attack protection layer;

10. The method as recited in claim 1, wherein a titanium nitride (TiN) layer formed by using a chemical vapor deposition (CVD) process is used for forming the attack protection layer.

11. The method as recited in claim 10, wherein the TiN layer is deposited by using the $TiCl_4$ source gas added with ammonia (NH_3) gas in an identical chamber where the Ti layer is subsequently deposited.

12. The method as recited in claim 10, wherein a thickness of the attack protection layer ranges from about 50 Å to about 200 Å.

13. The method as recited in claim 1, wherein the Ti layer is deposited by using the LPCVD process at a temperature ranging from about 600 ℃ to about 700 ℃ and at a pressure ranging from about 1 torr to about 50 torr.

14. The method as recited in claim 13, wherein the LPCVD process is performed by using the $TiCl_4$ source gas

added with ammonia (NH_3) gas and hydrogen (H_2) gas including argon (Ar) gas and a flow amount ratio of the NH_3 gas to the Ar gas is about 1 to about 5.

15. A method for forming a barrier metal layer for a semiconductor device fabrication, comprising the steps of:

a) forming a contact hole exposing an active area through a selective etch of an insulation layer formed on a silicon substrate providing the active area;

b) forming an attack protection layer for preventing the silicon substrate attack caused by a succeeding titanium layer deposition process on the active area exposed by the contact hole, wherein the attack protection layer is electrically conductive;

c) forming a titanium (Ti) layer along a profile of the attack protection layer formed on the active area by using a low pressure chemical vapor deposition (LPCVD) process using a source gas of $TiCl_4$;

d) diffusing the Ti layer into the attack protection layer to thereby forming a metal silicide layer; and

e) forming a titanium nitride (TiN) layer on the Ti layer.

16. The method as recited in claim 15, wherein a poly-silicon layer formed by a chemical vapor deposition (CVD) process is used as the attack protection layer.

17. The method as recited in claim 16, wherein the CVD process is carried out by using a source gas of $Si_2H_6/Cl/H_2$.

18. The method as recited in claim 17, wherein the CVD process for forming the attack protection layer is performed at a temperature ranging from about 600 ℃ to about 700 ℃ and at a pressure ranging from about 0.1 mtorr to about 1 mtorr.

19. The method as recited in claim 15, wherein a titanium nitride (TiN) layer formed by a chemical vapor deposition (CVD) process is used as the attack protection layer.

20. The method as recited in claim 19, wherein the attack protection layer is deposited by using the $TiCl_4$ source gas added with ammonia (NH_3) gas in an identical chamber where the Ti layer will be deposited.

21. The method as recited in claim 19, wherein a thickness of the attack protection layer ranges from about 10 Å to about 100 Å

22. The method as recited in claim 15, wherein the Ti layer is deposited by using the LPCVD process at a

temperature ranging from about 600 ℃ to about 700 ℃ and at a pressure ranging from about 1 torr to about 50 torr.

23. The method as recited in claim 22, wherein the LPCVD process is performed by using the $TiCl_4$ source gas added with ammonia (NH_3) gas and hydrogen (H_2) gas including argon (Ar) gas and a flow amount ratio of the NH_3 gas to the Ar gas is about 1 to about 5;

24. The method as recited in claim 15, wherein the TiN layer is deposited on the Ti layer by using a low pressure chemical vapor deposition (LPCVD) process at a temperature ranging from about 600 ℃ to about 700 ℃ and at a pressure ranging from about 1 torr to about 50 torr.

25. The method as recited in claim 24, wherein the LPCVD process is performed by using the $TiCl_4$ source gas added with ammonia (NH_3) gas and hydrogen (H_2) gas including argon (Ar) gas and a flow amount ratio of the NH_3 gas to the Ar gas is about 8 to about 15.

26. The method as recited in claim 25, wherein the TiN layer is deposited in an identical chamber where the Ti layer is deposited.

27. The method as recited in claim 15, wherein the titanium silicide layer is produced by carrying out a heat

treatment process at a temperature ranging from about 700 ℃ to about 900 ℃.

28. The method as recited in claim 15, wherein further comprising the step of deoxidizing the surface of the Ti layer using hydrogen (H_2) gas to remove a remnant chlorine radical after depositing the Ti layer and the TiN layer.

29. The method as recited in claim 17, further comprising the step of deoxidizing the surface of the attack protection layer using a hydrogen (H_2) gas to remove remnant chlorine radical after depositing the attack protection layer, i.e., the poly-silicon layer.

30. The method as recited in claim 15, further comprising the step of illuminating an ultra violet light having a bigger energy than a binding energy of SiCl on the surface of the Ti layer to remove remnant chlorine (Cl) radical in the Ti layer.

31. The method as recited in claim 17, further comprising the step of illuminating an ultra violet light having a bigger energy than a binding energy of SiCl to remove remnant chlorine (Cl) radical in the attack protection layer.